L Number	Hits	Search Text	DB	Time stamp
1	1945	(natural adj language) and dictionary	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:44
2	349	((natural adj language) and dictionary) and 707/$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:28
3	83	(((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:29
4	2	((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and query and SQL and search$6 and keyword	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:32
5	0	((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and (row and column) near4 (information or header or abbreviat$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:34
6	14	((natural adj language) and dictionary) and (row and column) near4 (information or header or abbreviat$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:35
7	5	((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:37
8	5	((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6 or lable)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:37
9	7	((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6 or label)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:37
10	2	(((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and query and SQL and search$6 and keyword) and http	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:41
11	2	((((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and query and SQL and search$6 and keyword) and http) and (network or internet)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:41
12	1	(((((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and query and SQL and search$6 and keyword) and http) and (network or internet)) and processor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:42
13	6	(((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6 or label)) and processor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:42

14	55	(natural adj language) same dictionary same linguistic	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:50
15	21	((natural adj language) same dictionary same linguistic) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:49
16	2	(((natural adj language) same dictionary same linguistic) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4)) and query near2 (translat$6 or conver$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:50
17	21	((natural adj language) same dictionary same linguistic) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:50
18	2	(((natural adj language) same dictionary same linguistic) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5))) and query near2 (translat$6 or conver$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:52
19	410	((natural adj language) and dictionary) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5))	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:52
20	32	(((natural adj language) and dictionary) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5))) and query near2 (translat$6 or conver$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:50
21	5	((((natural adj language) and dictionary) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5))) and query near2 (translat$6 or conver$6)) and (natural adj language) with processor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:51
22	185	((natural adj language) and dictionary) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5)) same dictionary	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:52
23	11	(((natural adj language) and dictionary) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5)) same dictionary) and query near2 (translat$6 or conver$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:54
24	5	((((natural adj language) and dictionary) and (spell$8 or spellcheck$6 or (spell$4 adj check$4) or spell-check$4 or (spell$5 adj correct$5)) same dictionary) and query near2 (translat$6 or conver$6)) and processor	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:54

L Number	Hits	Search Text	DB	Time stamp
1	1945	(natural adj language) and dictionary	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:28
2	349	((natural adj language) and dictionary) and 707/$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:28
3	83	(((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:29
4	2	((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and query and SQL and search$6 and keyword	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:32
5	0	((((natural adj language) and dictionary) and 707/$.ccls.) and 704/$.ccls.) and (row and column) near4 (information or header or abbreviat$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:34
6	14	((natural adj language) and dictionary) and (row and column) near4 (information or header or abbreviat$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:35
7	5	((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:37
8	5	((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6 or lable)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:37
9	7	((natural adj language) and dictionary) and (row and column) near2 (information or header or abbreviat$6 or label)	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2003/11/10 11:37

DOCUMENT-IDENTIFIER: US 20020059204 A1

TITLE: Distributed search system and method

------- KWIC -------

Abstract Paragraph - ABTX (1):
   A method and system for providing distributing a query to devices on a
communications network, such as servers on the internet, using an application
that can survey a subscriber's server that can include text documents and
databases, and use the formatting information and data from the survey to
create at least one **dictionary** customized to the subscriber's data sources. A
user seeking information can initiate a search or query from an initiating
device using keywords, **natural language** terms, connectors, expressions, etc.,
and the query can be transmitted to various subscriber customized **dictionaries**.

The customized **dictionaries** can customize the query based on respective
subscriber databases and text documents, text search engines, etc., to produce
an customized query result. The query results can be filtered and integrated
for presentation to the initiating device. Search results can be customized
using user preference or profile information.

Cross Reference to Related Applications Paragraph - CRTX (1):
   [0001] This application claims priority to U.S. Ser. No. 60/221,546
entitled "Distributed **Natural Language** Search Method", naming Larry R. Harris
as inventor, and filed on Jul. 28 2000, the contents of which are herein
incorporated by reference in their entirety.

Summary of Invention Paragraph - BSTX (8):
   [0007] The present disclosure provides a system and method for performing a
search of data sources that can reside on a network such as the internet. The
search can be specific to the content and organization of the data sources.
The search can also be a distributed search to multiple data sources. Data
sources can include textual documents such as web pages that can include
program instructions, and other types of text documents, text files, and
databases, although other data sources can be included. The data sources can
reside on one or more servers or other devices on a network. Searches or
queries can be initiated using **natural language** expressions, sentences,

keywords, or combinations thereof, from which data source content-specific queries can be generated and executed. In some embodiments, a dynamically generated customized query can be formed and issued for each data source to be
searched or queried.

Summary of Invention Paragraph - BSTX (10):

[0009] When a subscriber maintains a product catalog database, for example, the installed application can access the database and build a customized **dictionary** that can convert a **natural language** or keyword search query to a precise SQL query for the subscriber's product catalog database. Additionally and optionally, if the target of the search is text, the installed application can build a custom **dictionary** can generate an advanced text search of the website using one or more standard text search engines that may be otherwise installed at or available to the website.

Summary of Invention Paragraph - BSTX (11):

[0010] In some embodiments, the methods and systems can allow an internet user or other internet accessible entity, including non-human entities, to initiate a search from, for example, a website. Such a website can hereinafter be referred to as an initiating website, and can be the network location from which the search can be broadcast or distributed to subscriber websites and hence, customized **dictionaries**. In one embodiment, the customized **dictionaries**
can receive a HTTP command and thereafter reach behind security measures such
as firewalls to access otherwise protected or secure data. The systems and methods can also allow subscribers to receive a search command or query information from the initiating website, utilize the subscriber's local customized **dictionary** to translate the search for the respective website, data source, etc., initiate a customized search of the subscriber's website, data source, etc., and extract the relevant information for submission as search results to the initiating website. In one embodiment, the search can be an SQL search or a text search.

Summary of Invention Paragraph - BSTX (12):

[0011] In one embodiment, the application at a particular subscriber's server can immediately determine from the received search command and the customized **dictionary,** that a search may not be necessary because the website
and/or data source may not include relevant information, products, services,

etc.

Summary of Invention Paragraph - BSTX (18):

[0017] In one embodiment, subscribers can update respective customized **dictionaries** to produce more accurate searches that can reflect changes in terminology, etc. In an embodiment, a **dictionary** can be updated locally or remotely via a wired or wireless network.

Summary of Invention Paragraph - BSTX (19):

[0018] The methods and systems can allow hierarchical searching of multiple servers and/or data sources using a "broker" **dictionary** that can receive query information and/or a search request from the initiating website or device, and broadcast the request to several other customized **dictionaries,** known as broadcast **dictionaries,** that can be located, for example, on various subscribers'servers. The broker **dictionary** can receive and compile search results from broadcast **dictionaries,** and transfer a single, composite search result to the initiating website. The broker **dictionary** can be utilized as an intelligent filter to intelligently select only specific broadcast **dictionaries** that may be more likely to produce relevant search results.

Summary of Invention Paragraph - BSTX (20):

[0019] In an embodiment, the methods and systems can identify customized **dictionaries** using a URL that can allow a remote server to access the **dictionary,** create a local copy, modify the copy, and transmit the modified copy to the original location for re-writing, etc.

Brief Description of Drawings Paragraph - DRTX (7):

[0026] FIG. 6 is a diagram representing systems and methods in accordance with the principles of FIG. 1 that include a broker **dictionary**.

Detail Description Paragraph - DETX (5):

[0030] A **dictionary** 18 can be formulated 104 based on the survey results 102. The **dictionary** 18 can be understood to be, for example, a computer program that can be implemented in a higher level language such as C, C++, Java, etc., that can receive query information as input, and can provide as output, a query formatted and otherwise customized for the data source.

Detail Description Paragraph - DETX (6):

[0031] Referring again to FIG. 1, query information 106 can be received by the **dictionary** 18. Although FIG. 1 illustrates only one **dictionary** 18, it can be understood that there can be multiple **dictionaries,** and in such embodiments,
the query information 106 can be received by the multiple **dictionaries**. The illustrated **dictionary** 18 can generate a customized query 110 based on the received query information 106 and the survey results. The customized query 110 can be applied to the data source 20 from which the survey was conducted. The customized query results 112 can, in some embodiments, be returned to the **dictionary** 18. In some embodiments, the **dictionary** 18 can format, arrange, aggregate, etc., the customized query results 112 and transfer or forward the results. For example, the query results 108 can be transferred to the entity that requested that supplied the query information 106, or another entity can be designated or otherwise specified to receive the query results 108. As indicated previously herein, FIG. 1 illustrates the principles of the methods and systems which have wide applicability.

Detail Description Paragraph - DETX (11):
    [0036] In an embodiment of the FIG. 1 system, the initiating device 12 can access the server 14 via the internet, and the server 14 can provide a webpage or other interface to the initiating device 12 to allow a user of the initiating device 12 to input data indicative of a query for information. Those with ordinary skill in the art will recognize that this query information can be of varying formats, and can include one or more keywords and/or **natural language** terms or expressions that can optionally be linked using one or more logical operators, including boolean expressions or notations such as "and", "or", and "not". In some embodiments, additionally and optionally, "+" and "-" can be used to indicate desired and undesired terms, respectively, for example. Those with ordinary skill in the art will recognize that there are many different connectors and methods of relating keywords, sentences, questions, and/or **natural language** words or expressions that can be used.

Detail Description Paragraph - DETX (12):
    [0037] For the purposes of the discussion herein, **natural language** can be understood to be a word, phrase, grouping of words, etc., in a language written or spoken by humans.

Detail Description Paragraph - DETX (13):
    [0038] Additionally and optionally, the query information can include a full text statement or question or other **natural language** data. The query information can be entered to the initiating device 12 and thereafter edited

using one or more of multiple peripheral devices connected to the initiating device that can include a keyboard, keypad, stylus, mouse, microphone, etc., wherein those of ordinary skill in the art will recognize that the methods and systems herein are not limited to the mechanism of inputting query information to the initiating device 12. Furthermore, the methods and systems are not limited to the format of inputting the query information or a user interface that can be provided to facilitate such entry. For example, in some embodiments, the query information can be input using one or a combination of text input boxes, text documents, menu selections, drop-down boxes, radio buttons, etc. The illustrated initiating device 12 also can provide a user with the ability to initiate the search, and in one embodiment, search initiation can be understood as entering the query information.

Detail Description Paragraph - DETX (17):

[0042] The illustrated subscribers 16a, 16b, 16c can be servers as described previously herein with respect to the System Server 14. The servers 16 can include one or more data sources 20a, 20b, 20c, 20d (also referenced herein collectively or individually as 20). The subscribers 16 also include a **dictionary** 18a, 18b, 18c, 18d (also referenced herein collectively or individually as 18) that can be associated with and based on the data sources 20a, 20b, 20c, 20d. In an embodiment such as that of FIG. 1, a data source 20 can be associated with a **dictionary** 18, although in some embodiments, one **dictionary** 18 can be associated with more than one data source 20. Alternately, in an embodiment, one data source 20 could be associated with more than one **dictionary** 18.

Detail Description Paragraph - DETX (18):

[0043] For the illustrated systems and methods, as described previously herein, a **dictionary** 18 can be understood to be a translator between the received query information, received from the System Server 14 as described herein, and a data source 20. For the illustrated systems where one **dictionary** 18 corresponds to a data source 20, a **dictionary** 18 can be formed by installing a computer program on the subscriber server 16. In an embodiment, the computer program can be run from a remote location via a network. As indicated previously, in some embodiments, the survey computer program can be understood as a survey engine that examines the data sources 20 on the server 16. As indicated previously, the **dictionary** 18 can incorporate the survey engine results to provide a customized interface between received query information, and the data source 20.

Detail Description Paragraph - DETX (19):

[0044] For example, if the data source 20 is a database, the survey engine can identify **labels of tables, rows, and columns, and abbreviations** of labels, when necessary. This survey information can be incorporated into a **dictionary** 18 to allow received query information to be properly translated for the database. In the case of a database, query information from a user of the initiating device 12 can be an input to a **dictionary** 18, and the **dictionary** output can be a customized SQL query that uses terminology, abbreviations, etc., derived from the survey engine. In some embodiments, the **dictionary** output can be a customized HTTP search string that can utilize a general access method that can be created for the data source (e.g., the HTTP search string can be formatted based on drop-down menus/boxes, radio button selections, and/or other general access provisions). In an example of a database embodiment, a database can be configured with columns or rows that relate to colors that are abbreviated, such as "Rd" for Red, "Bl" for Blue, etc. If query information is submitted with the word "Blue", the customized **dictionary** can cause a customized query to be formatted using "Bl" according to the survey information. Accordingly, **row information and column information** can be understood herein to include a characterization of the database information that can include header information, element information, extraneous information that can otherwise provide insight to the database, etc.

Detail Description Paragraph - DETX (20):

[0045] Additionally and optionally, when the data source 20 is text, the survey engine can scan the text, identify synonyms, abbreviations, etc., for incorporation into a **dictionary** 18. A **dictionary** for a text data source 20 can format received query information into an advanced text query that can utilize a standard text engine. Some examples of standard text engines can include AltaVista, Excite, Google, Infoseek, Inktomi, Microsoft Index Server, etc., although such examples are provided for illustration and not limitation. Optionally and additionally, the **dictionary** can convert the received query information into a HTTP query that can be formatted according to a web page on the server 16, where the web page can include text input boxes, radio buttons, drop-down boxes, check-boxes, etc.

Detail Description Paragraph - DETX (21):

[0046] The illustrated **dictionaries** 18 can also include a **natural language** and linguistic **processor** that is well-known in the art for parsing received information, performing context analysis, generating synonyms, etc. The **dictionaries** 18 also include a spell corrector that can verify word spellings

and generate phonetic equivalents, although such features can reside independent of the spell corrector. The **dictionaries** 18 can also perform word variations to better interpret and/or distinguish words, for example, between similar words such as "build", "builder", and "building." Furthermore, the **dictionaries** 18 can perform phrase identification that includes identifying word groups within context. For example, "wrinkle-free" can be interpreted with respect to clothes, or in another manner with respect to plastic surgery. Accordingly, it can be understood that the **dictionaries** 18 for the illustrated systems and methods can extend the received query information to include terminology that is compatible with, understood by, and/or interpreted by a data source 20 to which the **dictionary** 18 corresponds.

Detail Description Paragraph - DETX (22):

[0047] A **dictionary** 18 can be equipped with a foreign language translator to convert received query information from one language, to another language that is compatible with the data source 20. In some embodiments, a **dictionary** 18 can be established for different languages, while in another embodiment, a single **dictionary** 18 can translate queries for multiple languages.

Detail Description Paragraph - DETX (23):

[0048] A **dictionary** 18 can determine that received query information from the initiating device 12 is not compatible with the data source 20 or otherwise cannot be interpreted. In an embodiment, the **dictionary** 18 can generate a list of possible interpretations for a user of the initiating device 12 to select. Additionally and optionally, the **dictionary** 18 can cause the initiating device 12 to provide a user with a request for additional, alternate, or restated query information.

Detail Description Paragraph - DETX (24):

[0049] A **dictionary** 18 can also identify a Frequently Asked Question (FAQ) and supply either a pre-defined answer to a user at the initiating device 12, or redirect the user to, for example, a web page that includes an answer. A **dictionary** 18 can also recognize and respond appropriately to query information that seeks a "yes" or "no" answer, time-based queries using date or time terminology including "now", "last month", "before", "between", etc., and arithmetic queries that can include mathematical concepts such as "lowest-priced", "top 5", "less than", etc.

Detail Description Paragraph - DETX (25):

[0050] In the illustrated systems and methods, results of a customized data

source search can be provided to a **dictionary** 18, and the **dictionary** 18 can thereafter organize, format, etc., the search results for return to the initiating device 12. The information can be presented via the subscriber server 16 to the System Server 14 and hence to the initiating device 12, or directly from the subscriber server 16 to the initiating device 12. In one embodiment, the search results can be formatted in XML to allow the server 16 to format the results according to a web application that can be executing on the subscriber server 16. For example, the XML output from the **dictionary** 18 can be used in Extensible Stylesheet Language (XSL) stylesheets or other web formatting options. Those with ordinary skill in the art will recognize that many formats for the **dictionary** output can be utilized, and the use of XML herein is provided for illustration and not limitation. For example, in one embodiment, HTML templates can be utilized to present search results directly to an internet browser without requiring additional programming. Other forms of SGML documents or other textual formats can be used without departing from the scope of the techniques provided herein. Alternately, search results can be presented graphically using bar charts, pie charts, histograms, Excel compatible spreadsheets, etc. Search results can also be saved as an Excel compatible file for later analysis. Additionally and optionally, the methods and systems herein can allow the search results to be provided to an application through a variety of Application Programmer Interfaces (APIs).

Detail Description Paragraph - DETX (28):

[0053] The methods and systems can operate with security measures that can be established by a system manager related to a server 16. For example, query information can be received or otherwise associated with identity information. A **dictionary** 18 can be configured to prevent the query information from being applied to a data source for which the user is not allowed to otherwise access. In such an embodiment, the methods and systems herein can be incorporated behind a firewall.

Detail Description Paragraph - DETX (30):

[0055] A **dictionary** 18 can also generate an output log that can be understood to be a computer file that can be accessed by a system administrator or other authorized individual or entity according to the server 16 configuration or other authorization scheme. The log file can be stored locally on the server 16 or another memory device connected to the server 16 through a wired or wireless network. The log files can be configured to provide data pertaining to received query information, customized search queries, generated search results, query identity, data source identity, time of query, etc., with such examples provided only for illustration. By editing the log file, a system administrator can view the effectiveness of the

dictionary with respect to query information, desired results, security, etc. Filters can be applied to the log files to provide log results based on results generated, date, time of day, time period, etc.

Detail Description Paragraph - DETX (31):

[0056] In the illustrated embodiments, a system administrator or other authorized user can edit a **dictionary** 18 to further customize the **dictionary** 18. Such edits can result from an analysis of the log file, for example. **Dictionary** edits can also be performed to further enhance business objectives. For example, automated, scheduled searches can be performed to query databases
for stock information, etc. In an embodiment, an email can be generated based on a search. For example, in an automated search established by an administrator to verify stock quantity, once a stock quantity reaches a predetermined value, an email can be sent to the administrator and/or another interested party.

Detail Description Paragraph - DETX (32):

[0057] A system manager or other authorized user can also customize a **dictionary** 18 and provide rules against which searches can be performed and search results can be presented. For example, a system manager can edit the **dictionary** to include a formula or rule for determining a profit margin, and have results presented in order of profit margin. Other rules could present results by vendor, product availability, price, etc., with such examples provided for illustration and not limitation. Such manual customization of a **dictionary** 18 can be performed and applied according to a particular user, or a group of users. The **dictionary** editing can be performed locally or via a network.

Detail Description Paragraph - DETX (34):

[0059] Accordingly, a **dictionary** 18 can include one or more of relevant content and/or values from a data source 20, a representation of schemas, relationships, and category hierarchies from the data source 20, configuration settings according to users and/or groups of users, business rules, terminology definitions or specifications, synonyms, a language translator, a **natural language processor,** an output data formatter, and a log file generator.

Detail Description Paragraph - DETX (35):

[0060] The methods and systems herein can also allow for the aggregation of customized query results from multiple data sources and/or **dictionaries**. For

example, as provided herein, query information submitted at an initiating device 12 can be broadcast to one or more **dictionaries** in broadcast or some other sequenced manner, wherein the search results can be filtered or otherwise aggregated at the System Server 14. The filtering or other presentation of information performed by the System Server 14 can be performed additionally and

optionally to filtering and organization that can be performed at individual **dictionaries** 18 and or servers 20.

Detail Description Paragraph - DETX (36):

[0061] Referring now to FIG. 3, there is a diagram representing the methods and systems in an embodiment that can be known as a query translation embodiment 30. In the FIG. 3 configuration, query information can be presented to the system 32 through an API 33 and to a query translator 34. The query translator 34 can translate the query information into a SQL statement, advanced text search expression, HTTP call, etc, by accessing a **dictionary** 18 that corresponds to a data source 20 to be searched. For the FIG. 3 embodiment, a server 16 can provide the received query information to the system 32 to receive from the system 32 via the query translator 34, a SQL statement, advanced text search expression, HTTP call, etc. The server 16 can thereafter submit or apply the returned search to a relational database, text search engine, etc.

Detail Description Paragraph - DETX (37):

[0062] Referring to FIG. 4, there is a diagram of a configuration 40 for the methods and systems that can allow the return of a data set for formatting a search request, by an application that can reside on the server 16 or another device. As indicated by FIG. 3, query information can be provided by the server 16. The query information can include or be accompanied by a **dictionary**
selection, a user ID, business rules, etc., and a desired output format to the system 42 through its API 33. This interface can be implemented using HTTP, Component Object Module (COM), Java, Enterprise, Javabean, C, C++, Visual Basic, or another well-known it method. The **natural language** query, **dictionary**
selection, and output format can be input to a query **processor** 44 that includes a data access module 46 that transfers the query information and **dictionary** selection to a query translator 34. The query translator 34 can utilize the specified **dictionary** 18 and query information to generate a customized query as
provided herein. Those with ordinary skill in the art will recognize that although FIG. 4 depicts a single **dictionary** 18 and query translator 34, the

embodiment of FIG. 4 can include multiple **dictionaries** and/or query translators. The customized query can be transferred to the data access module 46 that can issue the customized query to the data source 20 corresponding to the query. FIG. 4 demonstrates two data sources 20 that include a relational database management system 20a and a text search engine 20b, although other data sources can be utilized and specified. The customized query search results can be returned to the data access module 46 and thereafter transferred to the formatting module 48 with the specified output format. The formatting module 48 can format the query results based on the specified format, and transfer the formatted output to the server 16 through the API 33. In an embodiment, the formatted results can be transferred to the server 16 in XML format. A web application on the server 16 or another location can transform the XML search results into a desired presentation style using, for example, the W3C standard extensible stylesheet language transformation (XSLT) and HTML.

Detail Description Paragraph - DETX (38):

[0063] Referring to FIG. 5, there is a diagram for an embodiment 50 where the search results can be presented to a server application in a ready-to-display format. As was shown in FIG. 4, in FIG. 5, a server 16 can provide query information, **dictionary** selection, and output format to the data access module 46 of the query **processor** 44. The data access module 46 can provide the query information and **dictionary** selection to the query translator module 34 that utilizes the specified **dictionary** 18 to generate a customized search or query. The customized search can be provided to the data access module 46 and executed against the appropriate data source 20. The results of the search can be returned to the formatting module 48 via the data access module 46, with the specified output format. The formatted search results can be provided to the server 16 for display. In the illustrated system of FIG. 4, the formatted results can be fully customizable HTML templates for output to the internet, and can include colors, headers, footers, and other customizable characteristics to match the web site. The HTML can additionally and optionally include graphs, pie charts, bar graphs, reports, and spreadsheets that can be displayed using, for example, ActiveX control or Java applet.

Detail Description Paragraph - DETX (39):

[0064] As indicated with reference to FIG. 4, the system and methods according to FIG. 5 can be practiced with multiple query translators 34 and/or **dictionaries** 18. Additionally, the data sources 20a, 20b can be multiple and can include other data sources than illustrated. In the embodiments herein, although identification can be provided with a query request, some embodiments may not utilize query information.

Detail Description Paragraph - DETX (40):

[0065] Referring now to FIG. 6, there is shown an embodiment 60 wherein a "broker **dictionary**" 18e can be utilized to interface to other **dictionaries** and data sources. One of ordinary skill in the art will recognize from the description of the methods and systems provided herein, that a server 16 that is not illustrated, can be associated with the broker **dictionary** 18e. The illustrated broker **dictionary** 18e can include, for example, URLs of other servers at different locations in a local or other network (e.g., internet, intranet, LAN, WAN, etc.) that have relevant data sources and/or **dictionaries**. **Dictionaries** to which the broker **dictionary** 18e can communicate can be referred
to herein as broadcast **dictionaries**. In an embodiment, the broker **dictionary** 18e can provide an interface for a subscriber 16 with multiple servers. The multiple servers can maintain different customized **dictionaries,** or can share the broker **dictionary** 18e. In some embodiments, the broker **dictionary** 22 can interface to multiple subscribers 16 and/or data sources 20.

Detail Description Paragraph - DETX (41):

[0066] According to the FIG. 6 system, the broker **dictionary** 18e can receive query information from the initiating device 12 and the broker **dictionary** 18e can filter the search request to eliminate broadcast **dictionaries** and/or data sources 20 that do not include data relevant to the query information. The broker **dictionary** 18e can therefore include sophisticated and intelligent filters to eliminate unneeded broadcast search requests. Those with ordinary skill in the art will recognize that the broker **dictionary** 18e can include the attributes previously provided to **dictionaries** in general, including but not limited to language translation, synonym generation, **natural language** processing, business rules, etc.

Detail Description Paragraph - DETX (42):

[0067] The broker **dictionary** 18e can relay or broadcast query it information, as processed by the broker **dictionary** 18e, unprocessed, or a combination thereof, to the selected broadcast **dictionaries** 18f, 18g, 18h and other data sources 20e, 20f, 20g. For example, in the illustrated system of FIG. 5, the broker **dictionary** 18e can process the query information to provide a customized query that can be provided to the non-broadcast **dictionary** data sources 20e, 20f, 20g. Similarly, the broadcast **dictionaries** 18f, 18g, 18h can receive either the customized query information or the original query information from the initiating device 12. In either case, the broadcast

dictionaries 18f, 18g, 18h can process the received query information from the broker **dictionary** 18e, and distribute a customized query to one or more data sources 20h, 20i, 20j as provided previously herein. The customized query results from the different data sources 20e-20j can be transmitted or otherwise transferred to the broker **dictionary** 18e. The illustrated broker **dictionary** 18e can receive customized query search results and format the results to present a single result package to the initiating device 12 or other server 16 or application as provided herein. In some embodiments, the broker **dictionary** 18e can filter the search results before transferring or communicating the search results as provided herein.

Detail Description Paragraph - DETX (43):

[0068] Those with ordinary skill in the art will recognize that the systems and methods herein can include one or more databases that can be in communication with the servers 16 but are not otherwise illustrated in the representative figures. For example, a database can be utilized to maintain information based on user identity and privileges, broker **dictionaries** and associated broadcast **dictionaries,** rules for filtering query results, etc.

Detail Description Paragraph - DETX (44):

[0069] Accordingly, it can be understood that the methods and systems disclosed herein can be applied to a variety of queries. For example, the query information initially submitted can be a question, such as "How far is bank XXX from home?", such that data pertinent to the user (e.g., "home") and data related to a another sensor or entity (e.g., mapping program or distance calculator) can be integrated with the query information to provide an appropriate response. Questions can be presented in succession, and results from one question can be a basis as input to the **dictionary** for subsequent questions.

Detail Description Paragraph - DETX (45):

[0070] The techniques described herein are not limited to a particular hardware or software configuration, and may find applicability in many computing or processing environments. The techniques can be implemented in hardware or software, or a combination of hardware and software. The techniques can be implemented in one or more computer programs executing on one
or more programmable computers that include a **processor,** a storage medium readable by the **processor** (including volatile and nonvolatile memory and/or storage elements), one or more input devices, and one or more output devices.

Detail Description Paragraph - DETX (49):

[0074] What has thus been described is a method and system for providing efficient searching of devices on communications networks, such as servers on the internet, using an application that can survey a subscriber's server that can include a catalog and database, and use the formatting information and data from the survey to create a **dictionary** customized to the subscriber's data sources. A user seeking information can initiate a search from an initiating device using keywords, **natural language** terms, connectors, expressions, etc., wherein such query information can be transmitted to various subscriber customized **dictionaries**. The customized **dictionaries** can customize the query
based on respective subscriber databases and text documents, text search engines, etc., to produce an accurate search result. The search results can be filtered and integrated for presentation to the initiating device. Search results can be customized using user of preference or profile information.

Detail Description Paragraph - DETX (50):

[0075] Although the methods and systems have been described relative to specific embodiments thereof, the methods and systems are not so limited. Obviously many modifications and variations may become apparent in light of the
above teachings. For example, although the illustrated embodiment presented herein related to the internet, the methods and systems can be applied to searching other devices on other communications networks. Although HTML and
XML languages were utilized to facilitate the searching, other languages may be utilized. The survey program can be run locally on a server, or remotely from another platform. Similarly, a **dictionary** can be accessed and/or managed locally or remotely using wired or wireless communications systems and methods.
Results of customized queries can be aggregated at a server having multiple data sources, and thereafter transferred to the system server that can aggregate the results. In another embodiment, an application residing on the initiating device can receive and aggregate the results for presentation on the device. In an embodiment, search results can be displayed according to a user identification and/or information stored in a central database or local memory that includes user-specific preferences. The preferences can indicate suppliers, price, and other search-relevant criteria that can be submitted with the **natural language** search terms. In embodiments utilizing a user account for preferences, the respective subscriber **dictionaries** can integrate the user's preferences with the search terms to increase the probability of satisfying a search query for a user. In another embodiment, a user can be prompted for

preference criteria, while in another embodiment, user identification data can be entered and submitted with the search criteria. Upon receiving the user identification data, a **dictionary** can cause a pre-stored user profile to be extracted and incorporated into the search.

Detail Description Paragraph - DETX (52):

[0077] Data sources and **dictionaries** do not have to reside on the same server, medium, etc. Additionally, methods of presenting a query and presenting query results can be integrated with instant messaging and/or email.

Claims Text - CLTX (2):

1. A method for providing a SQL search query for a database, comprising, identifying database information based on at least one of, at least one database **column information,** at least one database **row information,** and at least one database element, providing query information, processing the query information with a **natural language processor,** and, generating the SQL search
query based on the processed query information and the identified database information.

Claims Text - CLTX (3):

2. A method according to claim 1, wherein providing query information includes providing a **natural language** expression.

Claims Text - CLTX (8):

7. A method according to claim 1, wherein identifying database information includes identifying at least one of at least one database **column header** and at least one database **row header**.

Claims Text - CLTX (10):

9. A method for providing a query for a text document, comprising, determining at least one text document keyword and an associated keyword context, providing query information, processing the query information with a **natural language processor,** and, generating the query based on the processed
query information, the keyword, and the associated keyword context.

Claims Text - CLTX (11):

10. A method according to claim 9, wherein providing query information includes providing a **natural language** expression.

Claims Text - CLTX (15):
14. A method for distributing a query to at least one data source on a network, the method comprising, for the at least one data source, providing at least one **dictionary,** wherein providing the at least one **dictionary** further includes, receiving the query, translating the query to a customized query based on the at least one data source, applying the customized query to the at least one data source, receiving results from the customized query, and, communicating the results to a device on the network.

Claims Text - CLTX (16):
15. A method according to claim 14, wherein providing at least one **dictionary** includes providing at least one of providing at least one **dictionary** based on a database and providing at least one **dictionary** based on at least one
textual document.

Claims Text - CLTX (18):
17. A method according to claim 14, wherein receiving the query includes receiving at least one of a **natural language** query and at least one keyword.

Claims Text - CLTX (21):
20. A method according to claim 14, wherein providing at least one customized **dictionary** further includes, identifying the at least one data source, and, surveying the at least one data source based on the identity of the at least one data source.

Claims Text - CLTX (22):
21. A method according to claim 14, wherein translating the **natural language** query includes translating the query from a first language to a distinct second language.

Claims Text - CLTX (23):
22. A method according to claim 14, wherein translating the query includes processing the query using a **natural language processor**.

Claims Text - CLTX (24):

23. A method according to claim 14, wherein translating the **natural language** query includes performing a spell check.

Claims Text - CLTX (27):

26. A method according to claim 14, wherein translating the query includes identifying at least one abbreviation in the **natural language** query.

Claims Text - CLTX (29):

28. A method according to claim 14, wherein translating the query includes identifying at least one of at least one **column header,** at least one **row header,** and at least one textual term.

Claims Text - CLTX (42):

41. A method according to claim 14, wherein applying the customized query to the at least one data source includes transferring the query to a broadcast **dictionary**.

Claims Text - CLTX (43):

42. A method according to claim 14, wherein receiving results from the customized query includes receiving results from at least one of at least one text document, at least one database, and at least one broadcast **dictionary**.

Claims Text - CLTX (45):

44. A method according to claim 14, wherein providing at least one customized **dictionary** further includes conditioning the application of the customized query based on at least one of an identity and a profile associated with the **natural language** query.

Claims Text - CLTX (47):

46. A system for providing a customized query in response to a query, the system comprising, an initiating device for providing a query, at least one data source, and, a **processor** in communication with the initiating device and the at least one data source, the **processor** having instructions for receiving the query, processing the query to generate a customized query based on the at least one data source, applying the customized query to the data source, and receiving results from the customized query.

Claims Text - CLTX (54):
   53. A system according to claim 46, further including at least one third server in communication with the second server, to receive at least one of the customized query or the **natural language** query from the second server.

Claims Text - CLTX (56):
   55. A system for performing a search in response to a query, the system comprising, at least one data source, at least one **dictionary** based on the at least one data source, and, a **processor** having instructions for receiving the query, generating a customized query based on the at least one **dictionary** and the query, and applying the query to the at least one data source.

Claims Text - CLTX (61):
   60. A system according to claim 55, further including a distinct second **processor** to supply the query.

Claims Text - CLTX (62):
   61. A system for providing a customized query, the system comprising, means for providing a query, data source means, means for receiving the query, submitting the query to a **natural language processor,** and generating a customized query based on the query and the data source means.

Claims Text - CLTX (65):
   64. A system according to claim 61, wherein the means for receiving the query includes a **processor**.

Claims Text - CLTX (66):
   65. A computer product for providing a SQL search query for a database, the computer product disposed on a computer readable medium and comprising instructions for causing a **processor** to, identify database information based on at least one of, at least one database **column information,** at least one database **row information,** and at least one database element, provide query information, process the query information with a **natural language processor,** and, generate the SQL search query based on the processed query information and
the identified database information.

Claims Text - CLTX (67):
66. A computer product according to claim 65, wherein instructions to provide query information include instructions to providing a **natural language** expression.

Claims Text - CLTX (72):
71. A computer product according to claim 65, wherein instructions to identify database information include instructions to identify at least one of at least one database **column header** and at least one database **row header**.

Claims Text - CLTX (74):
73. A computer product for providing a query for a text document, the computer product disposed on a computer readable medium and comprising instruction for causing a **processor** to, determine at least one text document keyword and an associated keyword context, provide query information, process the query information with a **natural language processor,** and, generate the query based on the processed query information, the keyword, and the associated
keyword context.

Claims Text - CLTX (75):
74. A computer product according to claim 73, wherein instructions to provide query information include instructions to provide a **natural language** expression.